



Global Wildlife Resources
Mark R. Johnson DVM
Wildlife Veterinarian

WILDLIFE HANDLING & CHEMICAL IMMOBILIZATION FOR ZOO AND WILDLIFE PROFESSIONALS

GENERAL COURSE OUTLINE for 2-day & 3-day Courses

Mark R. Johnson DVM, Instructor

**These are the general topics covered in GWR courses.
Each course is customized to meet the needs of the participants.**

**Every 3-day course includes labs with live animals.
Animal labs have been approved by many Animal Care and Use Committees.**

[Visit our Training Schedule to register and for more information.](#)

INTRODUCTION

A. Instructor:

Mark R. Johnson DVM
Global Wildlife Resources
PO Box 1025, Freeland, WA 98249
Cell phone: 406.570.3915
E-mail: mjohnson@WildlifeResources.com
Website: www.WildlifeCaptureandCare.com

B. Class members: Introductions and interests

C. Class schedule and logistics:

D. Homework - 1) Review course objectives 2) Drug dose calculations (discussed in class)

E. Course objectives:

1. Discuss ethical issues relating to wildlife capture and handling within a professional context.
2. Identify legal responsibilities associated with wildlife chemical immobilization.
3. Develop & maintain documentation for a chemical immobilization program.
4. Initiate a five-step preparation method for organizing field operations.
5. Understand & discuss advantages/disadvantages of various drug delivery systems.
6. Walk through basic steps and procedures in processing chemical immobilized or physically restrained wildlife.
7. Utilize professional skills, equipment, and attitudes to convey clear messages to the media and public about animal care and professional handling.
8. Follow safety measures which protect field personnel and the public.
9. Understand basic veterinary procedures for animal care including:
 - a. Monitoring temperature, pulse, and respiration.
 - b. Collecting blood and other samples.
 - c. Preventing and treating simple veterinary emergencies.

PERSPECTIVES

Objective:

Discuss ethical issues relating to wildlife capture and handling within a professional context.

A. What is our highest goal?

B. Ethics of wildlife capture & handling - the well-being of the animal is more important than our work.

5 STEP PREPARATION

Objective: Initiate five steps to prepare for and organize a chemical capture

A. Project objectives and methods: the BIG picture

B. Handling procedure: A Step by Step Plan

C. Equipment list

D. Field form

E. Euthanasia and other issues

PHYSICAL RESTRAINT

Objective: Learn physical restraint techniques of ungulates and canids. Restraint without fighting.

A. Ungulates

1. Holding
2. Hobbles

B. Canids

1. Scruff
2. Lateral restraint
3. Y Pole for canids

LEGAL RESPONSIBILITIES

Objectives:

1. Identify legal responsibilities associated with wildlife chemical immobilization.
2. Develop & maintain documentation for a chemical immobilization program.

A. DEA

1. Function
2. What is a controlled substance?
3. DEA Compliance
 - a. Purchasing
 - b. Documentation
 - c. Storage Security

B. FDA

1. Function
2. FDA Bottle labeling
3. Extra label use

DELIVERY SYSTEMS

Objective:

Understand and discuss advantages and disadvantages of various drug delivery systems.

- A. Direct Drug Delivery - syringes and syringe poles.**
- B. Anatomy of remote delivery systems**
- C. Manufacturers**
- D. Needle types**
- E. Principles of Remote Drug Delivery**

LAB 1: Drug Delivery Systems (in both 2-day and 3-day courses)

Practice a variety of CO₂ dart guns

Discuss dart diversity, loading, and maintenance

IMMOBILIZING DRUGS

Objectives:

1. Calculate drug volumes given animal weight, drug dose, and drug concentration.
2. Identify immobilizing drugs for wildlife and identify their general effects on animals.

A. Calculating Drug Doses

B. Important Terminology

SPECIFIC IMMOBILIZING DRUGS

A. Dissociative anesthetics (Cyclohexamines)

1. Ketamine
2. Tiletamine (Telazol)

B. Alpha-adrenergic Agonists (sedatives)

Xylazine and Medetomidine

C. Alpha-adrenergic Antagonists

Yohimbine, Tolazoline, Atipamezole

D. Butorphanol - added to ketamine/xylazine combinations for an improved version of an old drug combination.

E. BAM - the most current and effective drug combination

F. Accessory Drugs

1. Atropine sulfate
2. Doxapram hydrochloride
3. Tranquilizers - Midazolam, Azaperone, Haloperidol
4. Oxygen

LAB 2: Needle and Syringe Lab (in both 2-day and 3-day courses)

Learn safe and controlled use of needles and syringes

Safe recapping of needles;

Handling syringe poles

Vacutainer systems

PRINCIPLES OF IMMOBILIZATION

Objectives:

1. Recognize effects of immobilizing drugs demonstrated by animal behavior and vital signs and correlate to specific drugs administered.
2. Recognize which actions of the biologist influence the animal's response to immobilizing drugs.

A. Drug effects in wildlife and field signs

1. Ketamine/xylazine effects
2. Administering the drug
3. Repeating first attempt
4. Options when anesthetized animal begins to respond

LAB 3: Patient Monitoring Lab (with live animals) (in 3-day courses only)

Preparing for the final drugging lab on Day 3

Become confident with stethoscope and monitoring vital signs with awake animal

Become familiar with the goat, field form, and team members

Practice conducting a physical exam and find blood vessels

ANIMAL HANDLING

Objectives: Describe the principles and equipment for handling the anesthetized animal with care and human/animal safety.

A. BASIC CARE

1. Safety First!
2. Ground Cloth
3. Body position
4. Head cover

PATIENT MONITORING

Objective: Understand basic veterinary procedures for conducting a physical exam and monitoring an animal's vital signs (temperature, pulse, and respiration, color of gums, and capillary refill time).

A. Physical Exam

B. TPR

1. Temperature
2. Pulse
3. Respiration
4. Color of gums and capillary refill time (CRT)
5. Pulse oximetry

PREVENTATIVE MEASURES

A. Sterile Technique

B. Antibiotics

C. Pain management

SPECIFIC PROCESSING PROCEDURES

Objectives: Describe the techniques and equipment used for each wildlife processing procedure.

A. Weighing

B. Marking

1. Ear Tagging
2. Tattooing
3. Radio-collaring - VHF and satellite telemetry
4. Abdominal implants
5. PIT Tags

SAMPLE COLLECTION

Objective: Understand basic veterinary procedures for collecting blood and other samples.

A. Blood -

1. Why collect blood?
2. Where to collect
3. How to collect, handle, and store

B. Tooth Collection

TRANSPORT

FOLLOW-UP AFTER HANDLING

VETERINARY EMERGENCIES

Objective: Understand, recognize, and attend to the most common veterinary emergencies.

A. Hypothermia

B. Hyperthermia

C. Shock

D. Bloat

E. Inhaling stomach contents

F. Seizures

G. Capture Myopathy

H. Injuries

EUTHANASIA

ZOONOTIC DISEASES

HUMAN SAFETY

Objective: Address our priority for human and animal safety.

A. Animal Handling

B. Preventing human exposure

C. Human First Aid

D. Waste Disposal

LAB 4: Chemical Immobilization with live animals (hand injection): (in 3-day courses only)

1. Chemically immobilize animal and learning the animal's response to immobilizing drugs
2. Monitoring temperature, pulse, and respiration and other vital signs
3. Processing procedures (blood collection, radio-collaring, etc) appropriate for the species, animal, and hosting organization.
4. Document the chemical immobilization on a field form
5. Practicing professional mannerisms which maximize animal care and field success

Evaluations and pass out Certificates of Training